This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently amended). A method for synchronizing the transmission of real time synchronous data packets over asynchronous optical networks between at least two user terminal nodes, using a receiver and transmitter module implemented within intermediating communication devices that are connected between the TDM equipment and the asynchronous optical network, said method comprising the steps of:

A. Encapsulating data packets to include a sequence number in the data packet payload at the transmitter terminal node;

B. Providing the (TDM switch of) transmitter terminal node with Stratum 3, Stratum 3E, SMC or SEC classified clock pulse;

C. Preparing encapsulated data packets for transmission by the transmitter device according to the stratum 3 (3E) clock pulse;

D. Transmitting prepared data packets through an asynchronous network;

E. Receiving incoming data packets from an asynchronous network at the receiver terminal node;

F. Detecting the sequence number order of the received data packets at the receiver terminal node;

G. Compensating the packet rate of received data packets in the case of detecting offsets of non sequenced data packets enabling the receiver to receive the clock frequency rate that is equivalent to the transmitting frequency of the incoming packets;

H. Dividing the frequency rate of the incoming data signal; and

I. Attenuating the data transmission signal amplitude for reducing jitter and wander in compliance with stratum 3 accuracy standards.;

Claim 2 (Currently amended). The method according to claim 1 wherein the jitter and wander is reduced below the value of ± 250 microseconds.

Claim 3 (Original). The method according to claim 1 wherein the compensation is achieved by inserting a null data packet in case of missing data packets and ignoring data packets in the case that their sequential number is out of order.

Claim 4 (Original). The method according to claim 1 wherein the incoming data signal division enlarges the signal wavelength (up to the minimum frequency time) between two cycles of the signal.

Claim 5 (Currently amended). A receiver/transmitter module implemented within intermediating communication devices that connect ~~connects~~ between TDM communication equipment and the asynchronous optical network for the synchronizing the transmission of real time synchronous data packets over asynchronous optical networks between at least two user terminals nodes, ~~saidmodule~~ said module is comprised of:

A. Data packets encapsulator for inserting a sequence number in the data packet payload;

B. Stratum 3 (or Stratum 3E or SMC or SEC) clock rate generator for providing a classified clock pulse to the (TDM switch) receiving terminal node;

C. Data transceiver unit for preparing encapsulated data packets for transmission according to the stratum 3 (3E) clock pulse standard by the transmitter node and transmitting thereof through the asynchronous network;

D. Receiver unit for receiving incoming data packets from the asynchronous network;

E. Data packet detector for identifying the sequence number of received data packets;

F. Clock frequency compensator for recovering the clock rate in the case that offsets of non sequenced data packets are detected enabling the receiver to receive the clock frequency rate that is equivalent to the transmitting frequency of the incoming packets;

G. Frequency divider for dividing the incoming data signal; and

H. Advanced DPLL unit for attenuating the jitter and wander amplitude that is combined with the incoming data transmission signal in order to provide output signals in compliance with stratum 3 (3E) standards.;

Claim 6 (Currently amended). The module according to claim 1 wherein the jitter and wander is reduced below the value of ± 250 microseconds.

Claim 7 (Original). The module according to claim 1 wherein the compensation is achieved by inserting a null data packet in the case of missing data packets and ignoring data packets in case their sequential number is out of order.

Claim 8 (Original). The module according to claim 1 wherein the incoming data signal division enlarges the signal wave length (up to the limits of the minimum frequency time) between two cycles of the signal.

Claim 9 (New). A system for enabling real-time synchronous data transmission in asynchronous metropolitan networks comprising:

an asynchronous optical TDM network;

a transmitting intermediating device and a receiving intermediating device connected with the asynchronous optical TDM network, wherein the intermediating device intermediates between the asynchronous network and the TDM communication equipment;

a first communication module integrated within the transmitting intermediating device for preparing data packets and synchronizing the data packets with Stratum 3 clock;

a second communication module integrated within the receiving intermediating device for detecting data packet sequence order, compensating for the clock frequency of the data packets and attenuating jitter and wander accumulation according to Stratum 3E requirements; and

a set of instructions for enabling real-time synchronous data transmission over the asynchronous optical TDM network.

Claim 10 (New) The system of claim 9, wherein the transmitting intermediating device first communication module further comprises:

a splitter unit connected with the intermediary device input interface for routing the input of the TDM data signal through the intermediating device;

an encapsulation unit to process each arriving data packet, generate a sequence number associated with the arriving data packet and adding the sequence number to one of the data packets payload and the headers of the data packets to generate an encapsulated data packet;

a data transceiver for receiving the processed encapsulated data packets and preparing the encapsulated data packets for transmission; and

a Stratum 3E frequency generator for generating an accurate clock signal used by the encapsulation unit and the transceiver for synchronizing the encapsulated data packet transmission with Stratum 3E clock.

Claim 11 (New) The system of claim 9, wherein the set of instructions comprises:

a first subset of instructions for receiving real-time TDM signal data packets;

a second subset of instructions for generating a sequence number corresponding to the data packet and inserting the sequence number in the data packets; and

a third set of instruction for arranging the received data packets according to a predefined order and broadcasting the arranged data packets in compliance with Stratum 3E clock.

Claim 12 (New). The system of claim 9, wherein the receiving intermediating device second communication module further comprises:

a data packet detector for detecting data packets sequence order;

a clock frequency compensator for compensating clock frequency based on data packet sequence order;

a frequency divider for dividing the frequency rate of incoming data signals; and

a DPLL for attenuating jitter and wander accumulation according to Stratum 3E requirements.

Claim 13 (New). The system of claim 9 wherein the Stratum 3E standard comprises:

compliance with one of Stratum 3, SMC and SEC classified clock pulse.

Claim 14 (New). A system for enabling real-time synchronous data transmission in asynchronous metropolitan networks comprising:

an asynchronous optical TDM network;

a transmitting intermediating device and a receiving intermediating device connected with the asynchronous optical TDM network, wherein the intermediating device intermediates between the asynchronous network and the TDM communication equipment;

a first communication module integrated within the transmitting intermediating device for preparing data packets and synchronizing the data packets according to one of Stratum 3, Stratum 3E, SMC and SEC classified clock pulse standards, the first communication module comprising:

a splitter unit connected with the intermediary device input interface for routing the input of the TDM data signal through the intermediating device;

an encapsulation unit to process each arriving data packet, generate a sequence number associated with the arriving data packet and adding the sequence number to one of the data packets payload and the headers of the data packet payload to generate an encapsulated data packet;

a data transceiver for receiving the processed encapsulated data packets and preparing the encapsulated data packets for transmission; and

a Stratum 3 frequency generator for generating an accurate clock signal used by the encapsulation unit and the transceiver for synchronizing the encapsulated data packet transmission according to the Stratum 3 clock;

a second communication module integrated within the receiving intermediating device for detecting data packet sequence order, compensating for the clock frequency of the data packets and attenuating jitter and wander accumulation according to Stratum 3 requirements, the second communication module comprising:

a data packet detector for detecting data packets sequence order;

a clock frequency compensator for compensating clock frequency based on data packet sequence order;

a frequency divider for dividing the frequency rate of incoming data signals; and

a DPLL for attenuating jitter and wander accumulation according to Stratum 3 requirements; and

a set of instructions for enabling real-time synchronous data transmission over the asynchronous optical TDM network.